

What is claimed is:

1. An injector for a fuel injection system of an internal combustion engine, the fuel injection system including a fuel rail having a fuel rail cup in fluid communication with the fuel rail, the injector comprising:
 - a body extending along a longitudinal axis between an inlet and an outlet;
 - a seat coupled to the body proximate the outlet, the seat defining an opening through which fuel is adapted to flow into the internal combustion engine;
 - an armature assembly movable along the longitudinal axis with respect to the seat, the armature assembly being movable between a first configuration preventing fuel flow through the opening and a second configuration permitting fuel flow through the opening; and
 - an inlet tube assembly coupled to the body proximate the inlet, the inlet tube assembly including:
 - a first inlet tube member extending along the longitudinal axis between a proximal end and a distal end, the proximal end and the inlet of the body providing a first fluid-tight coupling; and
 - a second inlet tube member extending along a bending path between a first end and a second end, the first end and the distal end of the first inlet tube member providing a second fluid-tight coupling.
2. The injector according to claim 1, wherein the first fluid-tight coupling comprises an interference fit, and the second fluid-tight coupling comprises a weld.
3. The injector according to claim 2, wherein the weld comprises a hermetic weld.
4. The injector according to claim 1, wherein the second end of the second inlet tube member comprises first and second flares, the first flare is located at a terminus of the second end, and the second flare is located between the first flare and the first end of the second inlet tube member.
5. The injector according to claim 4, wherein the first and second flares define a groove circumscribing the second end of the second inlet tube member.

6. The injector according to claim 5, comprising:

an O-ring received in the groove, the O-ring being adapted to form a fluid tight seal between the second end of the inlet tube member and the fuel rail cup of the fuel rail.

7. The injector according to claim 1, wherein the bending path comprises a first portion proximate the first end of the second inlet tube member and a second portion proximate the second end of the second inlet tube member, the first portion of the bending path comprises a first segment that is substantially coincident with the longitudinal axis, and the second portion of the bending path comprises a second segment that extends along an oblique axis with respect to the longitudinal axis.

8. The injector according to claim 7, wherein the second segment comprises a rectilinear segment that is angularly oriented with respect to the longitudinal axis.

9. The injector according to claim 7, wherein the bending path comprises an intermediate portion between the first and second portions, the intermediate portion comprising an arcuate segment.

10. The injector according to claim 1, wherein the second end comprises a terminus defining a port lying in a plane that is obliquely oriented with respect to the longitudinal axis.

11. The injector according to claim 1, comprising:

a resilient member biasing the armature assembly toward the first configuration, and the first end of the first inlet tube member contiguously engages the resilient member.

12. A fuel injection system for supplying fuel from a fuel tank to an internal combustion engine, the fuel injection system comprising:

a fuel rail adapted to be supplied with fuel from the fuel tank, the fuel rail including a fuel rail cup; and

a fuel injector adapted to dispense fuel into the internal combustion engine, the fuel injector including:

a body extending along a longitudinal axis between an inlet and an outlet; and

an inlet tube extending along a bending path between a first end and a

second end, the first end being coupled to the body proximate the inlet, and the second end being coupled to the fuel rail cup such that fuel in the fuel rail is supplied via the fuel rail cup and the inlet tube to the outlet of the body; wherein the fuel rail is displaced from the longitudinal axis.

13. The fuel injection system according to claim 12, wherein the fuel injector comprises a seat and an armature, the seat is coupled to the body proximate the outlet and defines an opening through which fuel is adapted to flow into the internal combustion engine, the armature moves along the longitudinal axis with respect to the seat between a first configuration preventing fuel flow through the opening and a second configuration permitting fuel flow through the opening.

14. The fuel injection system according to claim 12, comprising:
an O-ring providing a fluid tight seal between the inlet tube and the fuel rail cup.

15. The fuel injection system according to claim 12, wherein the bending path comprises a first portion proximate the inlet of the body and a second portion proximate the fuel rail cup, the first portion of the bending path comprises a first segment that is substantially coincident with the longitudinal axis, and the second portion of the bending path comprises a second segment that extends obliquely with respect to the longitudinal axis.

16. The fuel injection system according to claim 15, wherein the second segment comprises a rectilinear segment that is angularly oriented with respect to the longitudinal axis.

17. The fuel injection system according to claim 16, wherein the fuel rail cup extends along the rectilinear segment that is angularly oriented with respect to the longitudinal axis.

18. The fuel injection system according to claim 15, wherein the bending path comprises an intermediate portion between the first and second portions, the intermediate portion comprising an arcuate segment.

19. A system for supplying fuel and air as combustion materials to an internal combustion engine including a cylinder head, the system comprising:

a fuel injector adapted to dispense the fuel into the internal combustion engine, the fuel injector including:

a body extending along a longitudinal axis between an inlet and an outlet, the outlet being adapted to be coupled to the cylinder head; and

an inlet tube extending along a bending path between a first end and a second end, the first end being coupled to the body proximate the inlet; and

an intake manifold adapted to be coupled to the cylinder head, the intake manifold having a body defining:

a first set of passageways adapted to convey the fuel to the internal combustion engine, the first set of passageways including a fuel cup receiving the second end of the inlet tube of the fuel injector along a cup axis, and the cup axis extending obliquely with respect to the longitudinal axis; and

a second set of passageways adapted to convey air to the internal combustion engine, the second set of passageways being separate from the first set of passageways.

20. The system according to claim 19, wherein the fuel injector comprises a seat and an armature, the seat is coupled to the body proximate the outlet and defines an opening through which fuel is adapted to flow into the internal combustion engine, the armature moves along the longitudinal axis with respect to the seat between a first configuration preventing fuel flow through the opening and a second configuration permitting fuel flow through the opening.